

CLAIMS

What is claimed is:

1. A method for displaying a video sequence, comprising:

- 2 (a) displaying simultaneously the video sequence in each of at least
two video windows, the video sequence being displayed with at least one
4 predetermined time offset between at least two of the video windows, each
video window having an associated audio channel;
6 (b) selecting a first video window; and
(c) playing the audio channel associated with the first video window.

2. The method of claim 1, further comprising:

- 2 selecting a second video window; and
playing the audio channel associated with the second video window.

3. The method of claim 2, further comprising:

- 2 storing a time index associated with the first video window and playing
the audio channel associated with a second video window, when the second
4 video window is selected; and
resuming display of the video sequence in the first video window
6 beginning at the stored time index, resuming play of the audio channel
associated with the first video window beginning at the stored time index, and
8 resetting the at least one predetermined time offset relative to the stored time
index, when the first video window is re-selected after the second video
10 window has been selected.

4. The method of claim 2, further comprising:

2 pausing the video sequence in the first video window and its associated
audio channel at a particular time index and playing the audio channel
4 associated with a second video window, when the second video window is
selected; and
6 resuming display of the video sequence in the first video window,
resuming play of the audio channel associated with the first video window,
8 and resetting the at least one predetermined time offset relative to the
particular time index, when a signal to re-select the first video window is
10 received after the second video window has been selected.

5. The method of claim 2, further comprising:

2 pausing the video sequence in the first video window and its associated
audio channel at a particular time index, when a first control element is
4 activated; and
 resuming display of the video sequence in the first video window,
6 resuming play of the audio channel associated with the first video window,
and resetting the at least one predetermined time offset relative to the
8 particular time index, when a second control element is activated.

6. The method of claim 5, wherein the first control element and the second control
2 element are the same.

7. The method of claim 1, wherein the number of video windows and their spatial
2 configuration on a display device are specified by a user prior to step (a).

8. The method of claim 1, wherein the at least one predetermined time offset is
2 specified by a user prior to step (a).

9. The method of claim 1, further comprising:
2 adjusting at least one of the at least one predetermined time offsets
while the video sequence is being displayed.

10. The method of claim 1, wherein each of the at least one predetermined time
2 offsets is an integer multiple of a time differential.

11. The method of claim 10, further comprising:
2 adjusting the time differential while the video sequence is being
displayed.

12. The method of claim 1, wherein selecting the first video window comprises
2 positioning a cursor over the first video window.

13. The method of claim 1, wherein selecting the first video window comprises
2 activating a pointing device.

14. The method of claim 1, wherein the first video window is larger than the other
2 video windows and further comprising:

reducing the size of the first video window and making a second video
4 window larger than the other video windows, when the second video window
is selected.

15. The method of claim 1, further comprising:

2 moving at least a second video window to a different location relative
to the other video windows, when the second video window is selected.

16. The method of claim 1, further comprising:

2 marking the first video window to differentiate it from the other video
windows.

17. The method of claim 16, wherein marking the first video window to differentiate

2 it from the other video windows comprises surrounding the first video window
with a border.

18. The method of claim 1, wherein the number of video windows and the at least one

2 predetermined time offset are chosen such that an overview of substantially all of
the video sequence is provided in the at least two video windows.

19. The method of claim 1, wherein step (b) comprises selecting at least two video

2 windows simultaneously and step (c) comprises playing simultaneously the audio
channel associated with each of the at least two selected video windows.

20. A method for displaying a video sequence, comprising:

2 (a) specifying at least two video windows to be displayed on a display
device;

4 (b) specifying a spatial configuration for the at least two video
windows;

6 (c) specifying a time differential;

(d) displaying the video sequence in each of the at least two video
8 windows, the video sequence being displayed with at least one predetermined
time offset between at least two of the video windows, the at least one
10 predetermined time offset being an integer multiple of the time differential;

(e) marking a first video window as a currently selected video window;

12 (f) playing a first audio channel associated with the first video window;
and

14 (g) marking a second video window as the currently selected video
window and playing a second audio channel associated with the second video
16 window, when a signal to select the second video window is received.

21. The method of claim 20, wherein marking a video window as the currently
2 selected video window comprises surrounding the video window with a border.

22. The method of claim 20, further comprising:

2 adjusting the time differential while the video sequence is being
displayed.

23. The method of claim 20, wherein the signal to select the second video window
2 comprises a cursor being positioned over the second video window.

24. The method of claim 20, wherein the signal to select the second video window
2 comprises the activation of a pointing device.

25. The method of claim 20, further comprising:

2 storing a time index from the first video window, when the signal to
select the second video window is received; and

4 resuming display of the video sequence in the first video window
beginning at the stored time index, resuming play of the first audio channel
6 beginning at the stored time index, and resetting the at least one predetermined
time offset relative to the stored time index, when a signal to re-select the first
8 video window is received after the second video window has been selected.

26. The method of claim 20, further comprising:

2 pausing the video sequence in the first video window at a particular
time index, when the signal to select the second video window is received; and

4 resuming display of the video sequence in the first video window,
resuming play of the first audio channel, and resetting the at least one
6 predetermined time offset relative to the particular time index, when a signal
to re-select the first video window is received after the second video window
8 has been selected.

27. The method of claim 20, further comprising:

2 pausing the video sequence in the first video window at a particular
time index prior to step (g), when a first control element is activated; and
4 resuming display of the video sequence in the first video window,
resuming play of the first audio channel, and resetting the at least one
6 predetermined time offset relative to the particular time index, when a second
control element is activated.

28. The method of claim 27, wherein the first control element and the second control
2 element are the same.

29. The method of claim 20, wherein the first video window is larger than the other
2 video windows during steps (a) through (f) and further comprising:

 reducing the size of the first video window and making the second
4 video window larger than the other video windows, when the signal to select
the second video window is received.

30. The method of claim 20, further comprising:

2 moving at least the second video window to a different location
relative to the other video windows, when the signal to select the second video
4 window is received.

31. The method of claim 20, wherein the number of video windows and the at least
2 one predetermined time offset are chosen such that an overview of substantially
all of the video sequence is provided in the at least two video windows.

32. A system for displaying a video sequence, comprising:

2 a display device to display the video sequence in each of at least two
video windows, the video sequence being displayed with at least one
4 predetermined time offset between at least two of the video windows, each
video window having an associated audio channel;

6 a first memory to store the video sequence in a digitized form, the
digitized form comprising digital video data;

8 a second memory organized such that each address in the second
memory corresponds to a unique pixel location on the display device;

10 a video interface circuit connected between the second memory and the
display device to convert digital video data to a format compatible with the
12 display device;

14 a video processor configured to control the transfer of digital video
data from the first memory to the second memory such that the at least one
predetermined time offset between the at least two video windows is
16 maintained as the video sequence is displayed;

a user interface configured to select at least one of the video windows;

18 and

an audio sub-system configured to play the audio channel associated
20 with each of the at least one selected video windows.

33. The system for displaying a video sequence of claim 32, further comprising:

2 a codec to convert the digital video sequence from a compressed to an
uncompressed format.

34. The system for displaying a video sequence of claim 32, wherein the first memory
is organized as a plurality of FIFO buffers, each FIFO buffer receiving at least one
portion of the video sequence corresponding to a unique one of the at least two
video windows.

35. The system for displaying a video sequence of claim 32, wherein the first memory
is organized as a single FIFO buffer having a first section to store an oldest
portion of the video sequence and a second section to store a newest portion of the
video sequence, the first section being large enough to span all of the at least one
predetermined time offsets associated with the at least two video windows.

36. The system for displaying a video sequence of claim 32, further comprising:
at least one set of virtual control elements on the display, each set of
virtual control elements controlling the display of the video sequence within a
corresponding video window.

37. The system for displaying a video sequence of claim 36, wherein each set of
virtual control elements comprises "play," "pause," "stop," "search forward," and
"search backward."

38. A system for displaying a video sequence, comprising:
display means for displaying the video sequence in each of at least two
video windows, the video sequence being displayed with at least one

4 predetermined time offset between at least two of the video windows, each
video window having an associated audio channel;

6 first memory means for storing the video sequence in a digitized form,
the digitized form comprising digital video data;

8 second memory means for storing digital video data organized such
that each address in the second memory means corresponds to a unique pixel
10 location corresponding to the display means;

means for converting digital video data stored in the second memory
12 means to a format compatible with the display means;

means for controlling the transfer of digital video data from the first
14 memory means to the second memory means such that the at least one
predetermined time offset between the at least two video windows is
16 maintained as the video sequence is displayed;

means for selecting at least one of the video windows; and

18 means for playing the audio channel associated with each of the at least
one selected video windows.

39. The system for displaying a video sequence of claim 38, further comprising:

2 means for converting the digital video sequence from a compressed to
an uncompressed format.

40. The system for displaying a video sequence of claim 38, wherein the first memory

2 means is organized as a plurality of FIFO buffers, each FIFO buffer receiving at
least one portion of the video sequence corresponding to a unique one of the at
4 least two video windows.

41. The system for displaying a video sequence of claim 38, wherein the first memory
2 means is organized as a single FIFO buffer having a first section to store an oldest
portion of the video sequence and a second section to store a newest portion of the
4 video sequence, the first section being large enough to span all of the at least one
predetermined time offsets associated with the at least two video windows.

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